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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,657

10/26/2006

Shigeru Nishio

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EXAMINER

LEGESSE, HENOK D

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,657	<b>Applicant(s)</b> NISHIO ET AL.	
	<b>Examiner</b> HENOK LEGESSE	<b>Art Unit</b> 2861	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-9, 11 and 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/05/2006 and 02/08/2006</u> . | 6) <input checked="" type="checkbox"/> Other: <u>1 Foreign Ref JP 2004-129699</u> .     |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group IX and Species B (claims 10 and 12) in the reply filed on 04/15/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors particularly with the Groups in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). The subspecies (i) – (vi) restriction requirement in page 6 of the restriction requirement is withdrawn. Applicant's suggested grouping is considered but failed to identify the supposed errors with the Groups in the restriction requirement. Thus, Claims 1-9,11,13-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

### ***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because the abstract includes more than 150 words. Correction is required. See MPEP § 608.01(b).

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4. The disclosure is objected to because of the following informalities: in multiples of pages for e example in page 2 line 1, page 5 line 1, page 10 line 1, page 76 line 1, page 78 line 1, there is a wider than normal blank space is present between adjacent words. Appropriate correction is required.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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8. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hotomi (US 5,477,249) in view of Oguchi et al. (JP 2004-129699).

**Regarding claim 10,** Hotomi teaches an electrostatic suction type fluid discharge device (figs.1,12) which discharges by electrostatic suction a fluid (ink 6, fig.1), which is electrically charged by voltage application, from a fluid discharge hole of a nozzle (15) of a discharge head (1) onto a substrate (16) opposite to the nozzle (15), wherein:

the fluid discharge hole, provided in the nozzle (nozzle hole 15), has a diameter ranging from 0.01 $\mu$ m to 25  $\mu$ m (col.3 lines 60-61),

the electrostatic suction type fluid discharge device (fig.1) comprises line-drawing means (13) for applying a voltage between the nozzle (15) and the substrate (16) while relatively moving the nozzle (15) and the substrate (16) so as to carry out line-drawing (during printing the head 1 and the substrate 16 are relatively moved), the voltage being equal to or greater than a minimum voltage to induce discharge, that is a voltage required to start discharge of the fluid (voltage is applied by the control unit 13 to cause discharge of droplet 1d, fig.3), Hotomi further teaches intermittent discharge (1d) is performed at a frequency depending on the voltage and an electric conductivity of the fluid (col.4 lines 3-13,59-66 and figs.1-3,12).

Hotomi does not explicitly teach controlling a speed of the relative movement so that adjacent ones of discharge pattern are partly overlaid with each other.

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However, Oguchi et al teaches electrostatic suction type fluid discharge device (figs.1,3,4) which discharges by electrostatic suction a fluid (Q), which is electrically charged by voltage application, from a fluid discharge hole of a nozzle (54 in figs.1,3; 96 in fig.4) of a discharge head onto a substrate (P) opposite to the nozzle (54,96), including line-drawing means controlling a speed of the relative movement so that adjacent ones of discharge pattern are partly overlaid with each other, in accordance with a period of intermittent discharge which is performed at a frequency depending on the voltage and an electric conductivity of the fluid (paragraphs 0013,0069-0073,0080-0081).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify ejection device of Hotomi such that to form overlapping droplets on the medium by controlling the relative speed based on the teachings of Oguchi et al in order to form a high resolution and high quality image more stably.

**Regarding claim 12**, Oguchi et al further teaches wherein, the line-drawing means controls the voltage or the speed of the relative movement so that the adjacent ones of discharge pattern are overlaid with each other by 0.5 to 1.5 times of a vertical diameter of each pattern, the vertical diameter being a diameter orthogonal to a direction of the relative movement (paragraphs 0013, 0069-0073, 0080-0081. paragraph 0073 teaches drops overlapping to each other on the medium in half i.e. overlaid with each other by 0.5 times the diameter of the drop. The overlapping of

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drops on the medium discussed in the rest of the paragraphs, it is clear that for a complete overlapping of two drops the limitation, overlaid with each other by 1 times the diameter is satisfied. note that for spherical/circular drops the diameter is equal in all directions).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENOK LEGESSE whose telephone number is (571)270-1615. The examiner can normally be reached on Mon.- Fri. Between. 8:00 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW LUU can be reached on (571)272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW LUU/  
Supervisory Patent Examiner, Art  
Unit 2861

H.L.  
July 14, 2010